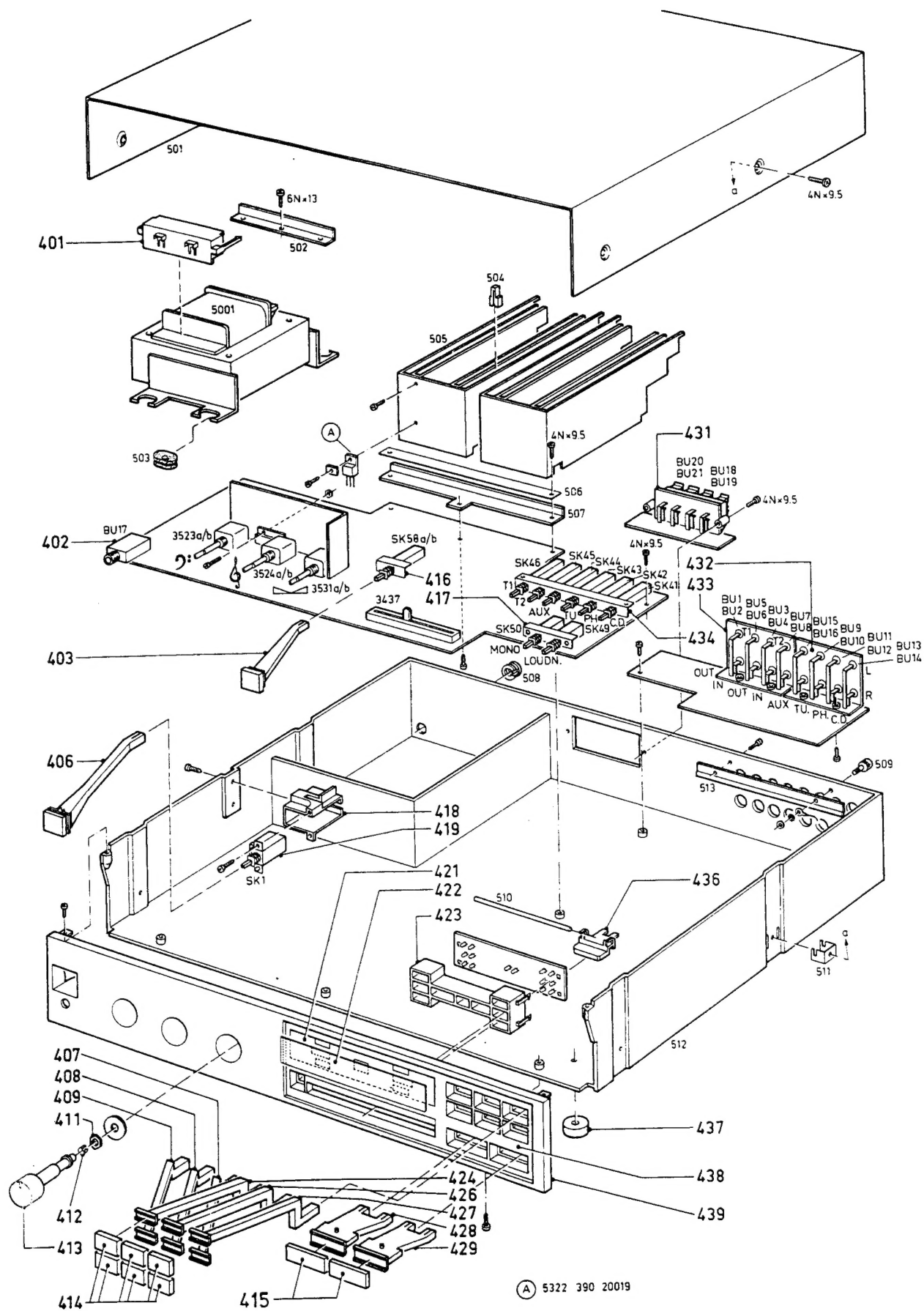


BESTELL-NR.	0041186
GERAETEBEZEICHNUNG	UNIV.-HIFI-VERSTAERK.
WARENGATTUNG	652
AUSFUEHRUNGS-NR.	001
GERAETEBESCHREIBUNG	DIN 45500 2X65 WATT
PRIVILEG	V 7456
LIEFERANTEN-NR.	291787
PREIS	399.00
KATALOG	845
GARANTIEZEIT	6
KD-SEKTOR	R
HEIH/BRINGE	WERKSTATT
BETREUUNG	EIGEN
KOSTENTRAEGER	EIGEN
REPARATURFAEHIG	JA



ZEILE	POSITION	SYM	BEZEICHNUNG	ET-NUMMER
1				
2			<u>GEHAEUSE UND BEDIENTEILE :</u>	
3				
4	403		KNOFF F. LAUTSPR. SYSTEM "A"- "B"	998 179 6
5	406		KNOFF FUER NETZSCHALTER	998 130 9
6	407		PLASTIKSTANGE, AUX-TV	998 180 4
7	408		PLASTIKSTANGE, TAPE-MONITOR 2	998 181 2
8	409		PLASTIKSTANGE, TAPE-MONITOR 1	998 182 0
9	413		KNOFF FUER DREHPOTI	998 134 1
10	414		SATZ KNOEPFE 6 STUECK	998 183 8
11	415		KNOFF MONO UND LOUDNESS	998 189 5
12	416 SK58		SCHALTER LAUTSPA. SYSTEM A/B	998 184 6
13	417 SK4950		TASTENSATZ 2-FACH	998 185 3
14	419, SK1		NETZSCHALTER	998 186 1
15	422		KLARSICHTSCHEIBE	998 140 8
16	424		PLASTIKSTANGE TUNER EINGANG	998 133 3
17	426		PLASTIKSTANGE PHONO-EINGANG	998 132 5
18	427		PLASTIKSTANGE DISC	998 131 7
19	429		PLASTIKSTANGE, LOUDNESS	998 142 4
20	434 SK41-5		TASTENSATZ 6-FACH	998 187 9
21	436		KNOFF FUER SCHIEBEREGLER	998 139 0
22	439		FRONTBLende	998 188 7
23	501	C	GEHAEUSE-OBERTEIL	998 145 7
24				
25			<u>ELEKTRISCHE TEILE :</u>	
26				
27	1501, 1502		SICHERUNG 4 AT	998 191 1
28	1503		THERMO-SICHERUNG	998 155 6
29	3437		SCHIEBEREGLER 2X100K	998 150 7
30	3523, 3524		DREHPOTI 2X30K	998 151 5
31	3531		DREHPOTI 220K	998 152 3
32	3543, 3544		WIDERSTAND 0.33 OHM 3 WATT	998 157 2
33	5001		NETZTRAFO	998 190 3
34	6409-6416		LED CQV 15-3, GRUEN (RUND)	957 541 6
35	6501		GLEICHRICHTER KBL 02-7000	998 149 9
36	6502-6506		DIODE 1 N 4148	175 540 4
37	6510, 6511		ZENERDIODE ZPY 18	928 925 7
38	6519-6527		DIODE 1 N 4148	175 540 4
39	6528		ZENERDIODE BZX 79 C 15	176 843 1
40	7401		IC NJM 4558 D	950 628 8
41	7501, 7502		IC UPC 1225 H	985 453 0
42	7503, 7504		TRANSISTOR BC 546 B	923 701 7
			ERSETZT ET-NR. 175 954 7	
43	7505, 7506		TRANSISTOR BDT 95 A	998 147 3
44	7507, 7508		TRANSISTOR BDT 96 A	998 148 1
45	7509		TRANSISTOR BC 556	945 328 3
			ERSETZT ET-NR. 175 955 4	
46	7510		TRANSISTOR BC 546 B	923 701 7
			ERSETZT ET-NR. 927 111 5	
47	7514, 7515		TRANSISTOR BC 556	945 328 3
			ERSETZT ET-NR. 923 700 9	
48	7601		TRANSISTOR BC 556	945 328 3
			ERSETZT ET-NR. 175 955 4	
49				
50			ALLE ANDEREN ERSATZTEILE SIND	
51			BEI BEDARF IM KLARTEx MIT POS.	
52			ANGABE UEBER KD-TB ZU BESTELLEN.	

ENDE

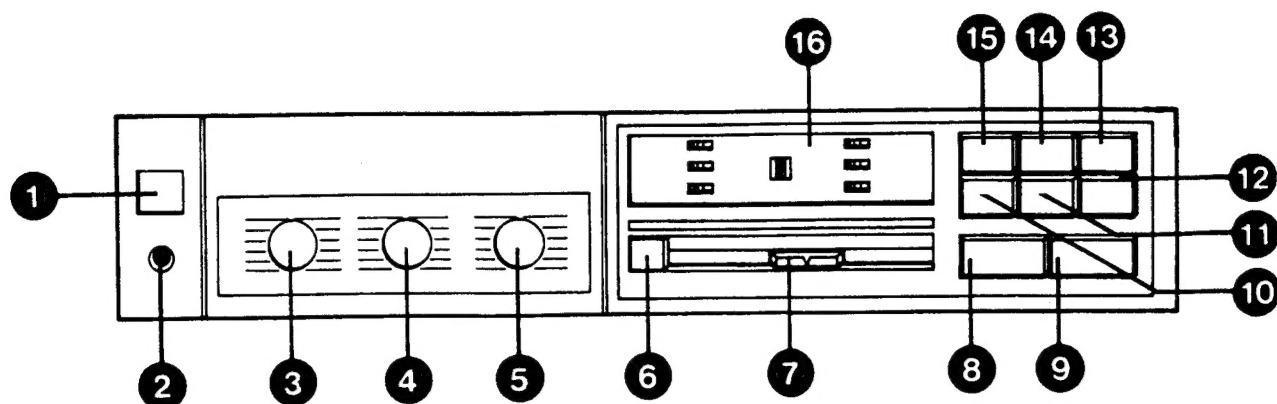


Fig. 1

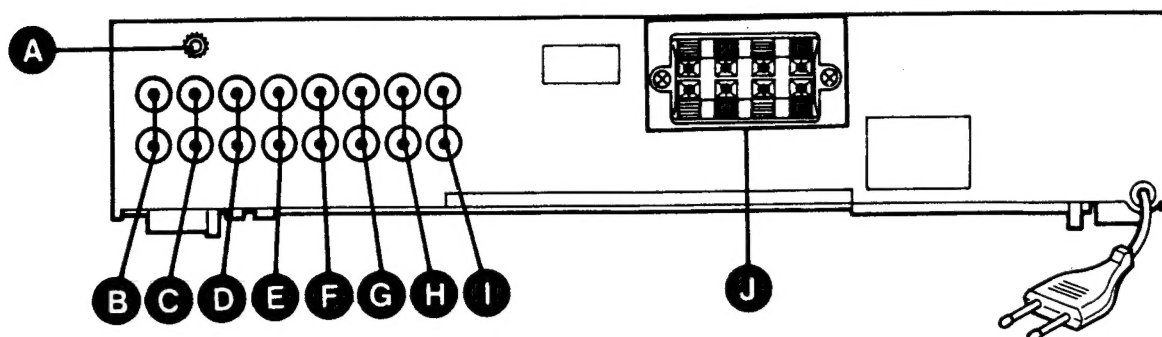


Fig. 2

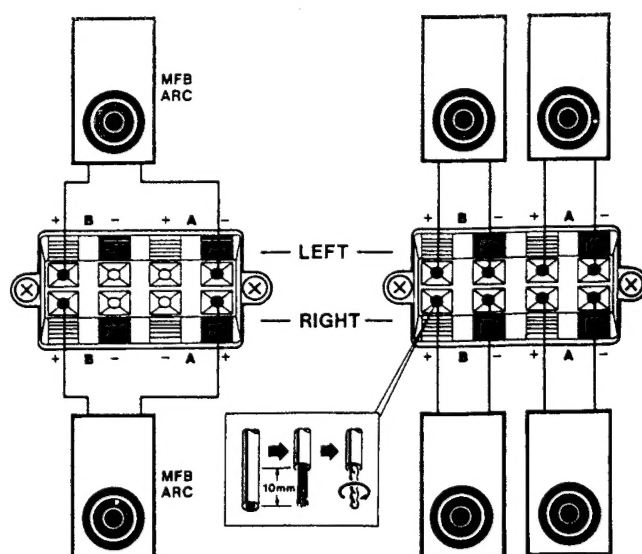
CONTROLS, CONNECTIONS, ETC.

Fig. 1

- | | |
|---|-----------|
| 1 on/off switch | SK1 |
| 2 socket for stereo headphone | BU17 |
| 3 bass control | 3523 a/b |
| First press knob to release it to the out position. Adjust control by rotating, then press knob again to lock it back in. | |
| 4 treble control, read remark bass control | 3524 a/b |
| 5 balance control, read remark bass control. | 3531 a/b |
| To adjust the level of the right and left channels. | |
| 6 loudspeaker switch | SK58 |
| pressed down: system A + system B | |
| not pressed down: system A | |
| 7 volume control | 3437 a/b |
| 8 mono switch | SK50 |
| 9 loudness switch | SK49 |
| Compensates for human hearing characteristics by boosting bass and treble response at low volume levels to achieve a more pleasing tonal balance. | |
| 10 tape 1/monitor switch | SK46 |
| 11 tape 2/monitor switch | SK45 |
| <i>Important:</i> Because this switch is overruled by switch 10 always release switch 10 when pressing down switch 11. | |
| 12 selector switch for auxiliary source/TV | SK44 |
| 13 compact disc selector switch | SK41 |
| 14 record player selector switch | SK42 |
| 15 tuner selector switch | SK43 |
| 16 display with indicators | 6409÷6416 |

Fig. 2

- | | |
|---|---------|
| A phono ground terminal | — |
| B input sockets for compact disc player | BU13-14 |
| C input sockets for MD record player | BU11-12 |
| D input sockets for tuner | BU9-10 |
| E input sockets for aux. source/TV | BU15-16 |
| F input sockets for recorder T2 | BU7-8 |
| G output sockets for recorder T2 | BU3-4 |
| H input sockets for recorder T1 | BU5-6 |
| I output sockets for recorder T1 | BU1-2 |
| J terminals for loudspeakers, set A and B | BU18÷21 |
| K mains lead | — |



SERVICING HINTS

Mechanical part

1. Service position

- Remove the push-button rod of the mains switch (snap-in fixation).
- Remove the 2 screws in the upper and lower sides of the front panel.
- Remove the 6 screws of the PCB.
- Put the set on its side.
- It is now possible to put the PCB with the front and the heat sinks in the service position.

Note:
Beware of the supply voltage on the heat sinks when switching on the mains voltage.

2. Demounting the front panel (item 439)

- Remove the push-button rods of the switches (snap-in fixation).
- Remove the rotary knobs.
- Remove the nuts of the rotary potentiometers.
- Remove the led PCB with led holder (snap-in fixation).
- Remove the 2 screws in the upper and lower sides of the front panel plus 1 screw in the middle of the inner side.

3. Demounting the slide knob (item 436)

- Remove the seal projections. Spare projections for remounting have been applied.
- Slide knob and guide post can now be removed by pushing the projection slightly outwards.

4. Demounting the sub-front (item 438), window (item 422 plate (item 421)

- The parts with item numbers 434, 422, 421 can be directly replaced by removing the seal projections.

Electrical part

1. Check of IC and power transistors

- Unsolder pins 11 and 12 on 7501 (7502).
- Unsolder negative feedback 3541 (3542) from emitter 7507 (7508) and connect to pin 11 7501 (7502).
- It is now possible to measure output transistors 7505, 7507 (7506, 7508) for shorts or interruptions by means of a millivoltmeter.
- At correct functioning of the IC, the direct voltage at pin 3 is +37 V, at pin 11 -0.02 V and at pin 12 +1.2 V. If the direct voltage at pin 3 is lacking, the safety circuit shall be checked.

2. Check of safety circuit

- Unsolder resistor 3567 (3568).
- The direct voltage at the collector should now be +37 V. If this voltage is present, transistor 7515 (7514) shall also be checked.

ELECTRICAL MEASUREMENTS

Measuring equipment required

- Universal meter.
- AC millivoltmeter.
- LF generator.
- Distortion meter.
- Oscilloscope.

General conditions






The measurements below relate to the left-hand channel.
The test points for the right-hand channel are given between brackets.
The following general conditions apply to the undermentioned electrical measurements, unless stated otherwise.

- Mains voltage 220 V \pm 2%.
- Ambient temperature 15 to 35°C.
- Apply load resistors of 8 Ω , 1% 120 W across the left and right outputs of system A.
- Tone and balance control in mid-position.
- Perform measurements on system A.
- Switches "Mute", "Mono", "High", "Low" and "Loudness", if present, in OFF position.
- Set should be encased.




Offset voltage at the loudspeaker output

Without input signal the maximum permissible direct voltage at the output is \leq 300 mV.








SUPPLY VOLTAGES








SK POSITION	 SIGNAL	 VOLUME	POWER SUPPLY	RIPPLE		QUIESCENT CURRENT	 ADJUSTING	 OUTPUT
Tape SK46		Min.	+1 +43 V \pm 1,2 V -1 -43 V \pm 1,2 V	214 mVtt				
	BU5 (BU6) 1 kHz	Max.	+1 +34 V \pm 1,2 V -1 -34 V \pm 1,2 V	1,7 Vtt				BU18-20 (BU19-21) 18,33 V 42 W
	No signal	Min.				45 mA \approx 15 mV	3513 (3514)	3543 (3544)

OUTPUT POWER AND HARMONIC DISTORTION (THD)

SK POSITION	 SIGNAL	 INPUT	 OUTPUT	FTC 16,73 V 35 W	IEC 17,88 V 10 W	DIN 18,33 V 42 W
Tape SK46	Via 1 k Ω	BU5 (BU6)	BU18-20 (BU19-21)			
	20 Hz			\leq 0,04%		
	63 Hz				\leq 0,7%	
	1 kHz			\leq 0,01%	\leq 0,3%	\leq 0,7%
	12,5 kHz				\leq 0,7%	
	20 kHz			\leq 0,04%		

LF SENSITIVITY

SK POSITION	 SIGNAL	 INPUT	 TERMINATING RESISTOR	 VOLUME	 BASS	 TREBLE	LOUDNESS	 OUTPUT
Tuner CD Aux. Tape SK46	1 kHz 130-180 mV	BU5 (BU6)		MAX				BU18-20 (BU19-21) 16,73 V 35 W
Phono SK42	1 kHz 2,3-2,8 mV	BU11 (BU12)		MAX				BU18-20 (BU19-21) 16,73 V 35 W

SK POSITION							LOUDNESS	
	SIGNAL	INPUT	TERMINATING RESISTOR	VOLUME	BASS	TREBLE	LOUDNESS	OUTPUT

LF CHARACTERISTIC TONE CONTROL








Tape SK46	Via 1 kΩ 1 kHz	BU5 (BU6)		MAX	MID	MID	OFF	BU18-20 (BU19-21) 0.775 V ≈ 0 dB				
	40 Hz				MAX	MID	OFF	+ 12 dB ± 2 dB				
					MIN	MID	OFF	−11 dB ± 2 dB				
	10 kHz			−40 dB	MID	MID	ON	+ 10 dB ± 2 dB				
				MAX	MID	MAX	OFF	+ 10 dB ± 2 dB				
					MID	MIN	OFF	−10 dB ± 2 dB				
				−40 dB			MID	MID	ON	+ 3.5 dB ± 1 dB		

P.U. AMPLIFIER (RIAA)

Phono SK42	Via 1 kΩ 1 kHz	BU11 (BU12)	22 kΩ BU1 (BU2)	MAX	MID	MID	OFF	BU18-20 (BU19-21) 0,775 V ≈ 0 dB
	20 Hz							BU1 (BU2). 150 mV + 16,3 dB ± 1 dB
	40 Hz							+ 16,8 dB ± 1 dB
	250 Hz							+ 6,8 dB ± 1 dB
	1 kHz							0 dB ± 1 dB
	10 kHz							—13,7 dB ± 1 dB
	20 kHz							—19,6 dB ± 1 dB

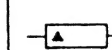
CROSS-TALK CHANNELS

Tape SK46	Via 22 k Ω // 250 pF 500 mV	BU5 (BU6)		Adjusting				BU18-20 16,73 V 35 W
	250 Hz							BU19-21 \geq 35 dB
	1 kHz							BU19-21 \geq 50 dB
	10 kHz							BU19-21 \geq 35 dB
Phono SK42	Via 2k2 Ω 5 mV	BU11 (BU12)		Adjusting				BU18-20 16,73 V 35 W
	250 Hz							BU19-21 \geq 35 dB
	1 kHz							BU19-21 \geq 50 dB
	10 kHz							BU19-21 \geq 35 dB

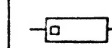
SK POSITION							LOUDNESS	
	SIGNAL	INPUT	TERMINATING RESISTOR	VOLUME	BASS	TREBLE	LOUDNESS	OUTPUT

CROSS-TALK INPUTS

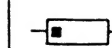
Tape SK46	Via 1 k Ω 1 kHz	BU5 (BU6)	Tuner BU9 (BU10) 22 k Ω	MAX				BU18-20 (BU19-21) 16,73 V 35 W
			CD BU13 (BU14) 22 k Ω					BU9 (BU10) \geq 60 dB
			Aux BU15 (BU16) 22 k Ω					BU13 (BU14) \geq 60 dB
			Phono BU11 (BU12) 2k2 Ω					BU15 (BU16) \geq 60 dB
								BU11 (BU12) \geq 60 dB
Phono SK42	Via 2k2 Ω 1 kHz	BU11 (BU12)	Tuner BU9 (BU10) 22 k Ω	MAX				BU18-20 (BU19-21) 16,73 V 35 W
			CD BU13 (BU14) 22 k Ω					BU9 (BU10) \geq 60 dB
			Aux BU15 (BU16) 22 k Ω					BU13 (BU14) \geq 60 dB
			Tape BU5 (BU6) 22 k Ω					BU15 (BU16) \geq 60 dB
								BU5 (BU6) \geq 60 dB



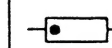
Carbon film
0.2 W 70°C 5%



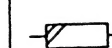
Carbon film
0.33 W 70°C 5%



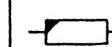
Metal film
0.33 W 70°C 5%



Carbon film
0.5 W 70°C 5%



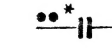
Carbon film
0.67 W 70°C 5%



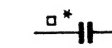
Carbon film
1.15 W 70°C 5%



Ceramic plate
Tuning \leq 120 pF NP.0 2%
Others -20/+80%



Polyester flat foil 10%



Metalized polyester flat film 10%



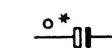
Polyester flat foil small size (Mylar) 10%



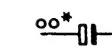
Polysterene film/foil 1%



Tubular ceramic



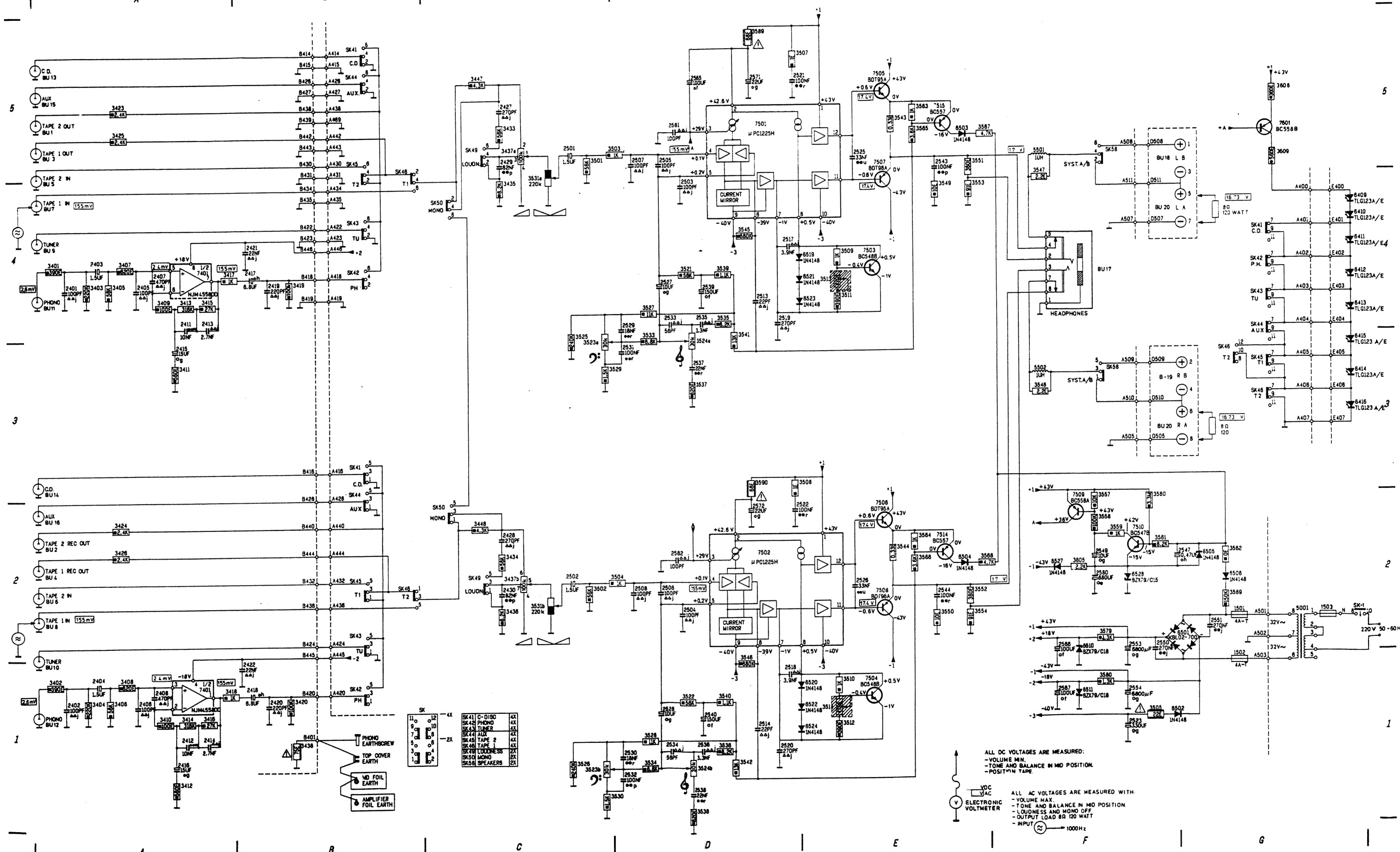
Miniature single

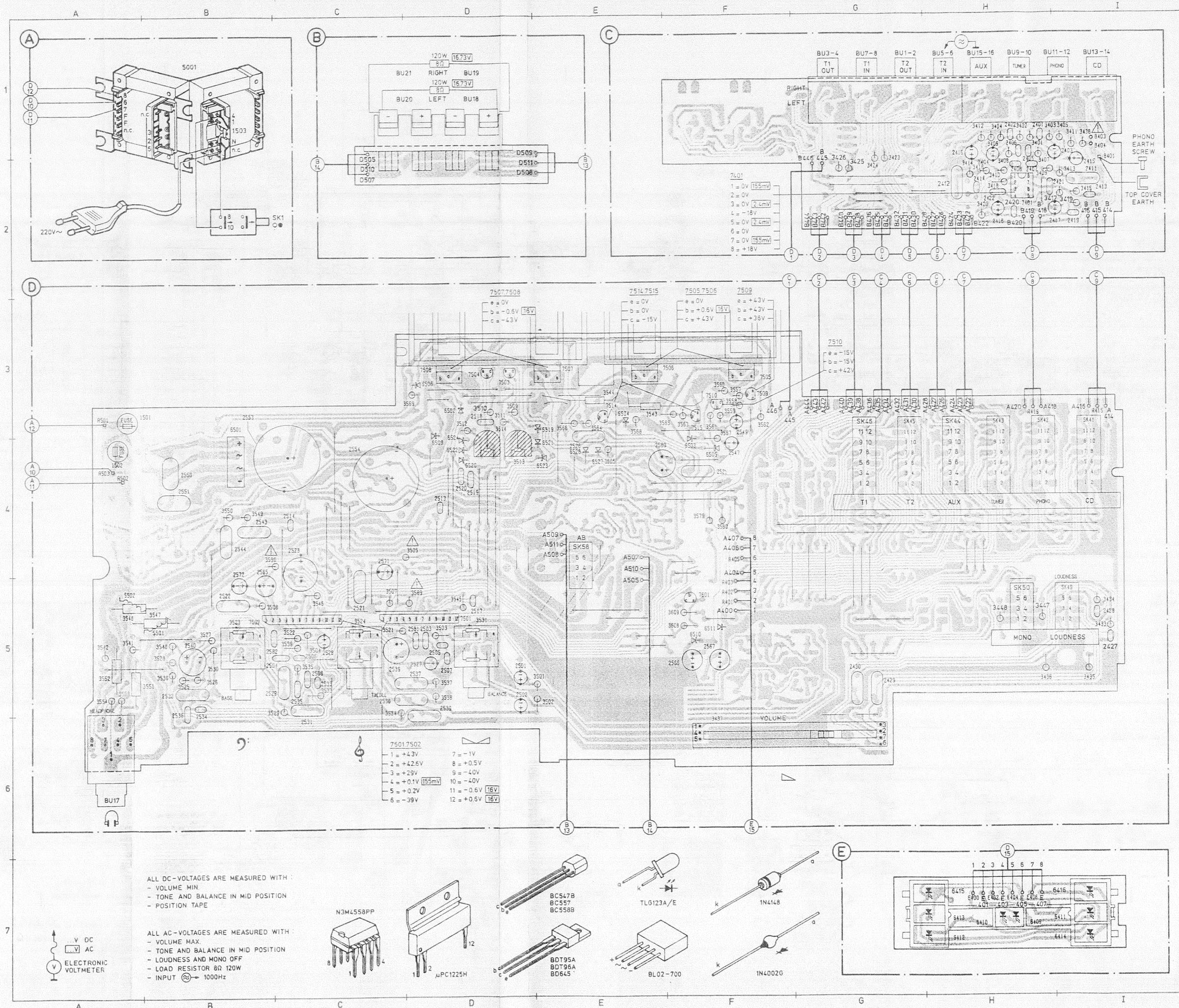


Subminiature tantalum \pm 20%

Ⓢ Chip component

*a = 2,5 V
b = 4 V
c = 6,3 V
d = 10 V
e = 16 V
f = 25 V
g = 40 V
h = 63 V
j = 100 V
i = 125 V
m = 150 V
n = 160 V
q = 200 V
r = 250 V
s = 300 V
t = 350 V
u = 400 V
v = 500 V
w = 630 V
x = 1000 V
A = 1,6 V
B = 6 V
C = 12 V
D = 15 V
E = 20 V
F = 35 V
G = 50 V
H = 75 V
I = 80 V





ALL DC-VOLTAGES ARE MEASURED WITH :
- VOLUME MIN.
- TONE AND BALANCE IN MID POSITION
- POSITION TAPE

ALL AC-VOLTAGES ARE MEASURED WITH :
- VOLUME MAX.
- TONE AND BALANCE IN MID POSITION
- LOUDNESS AND MONO OFF
- LOAD RESISTOR 8Ω 120W
- INPUT 1000Hz

